

Disease Investigation through Clinically-Oriented Ventures in Environmental Research



DISCOVER

**Applicant Information Meeting
NIEHS
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Welcome



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Longstanding Strengths of the NIEHS Extramural Program

➤ *Basic Biology*

- Oxidative stress
- DNA Repair
- Apoptosis
- Gene regulation
- Mutagenesis
- Endocrine disruption
- Metabolism
- Receptor Biology
- Signal transduction
- Development

➤ *Public Health*

- Pb and IQ
- Air Pollution and Mortality
- Pesticides and reproduction
- As and Cancer
- Hg and neurodevelopment
- Aflatoxin and cancer
- PCBs and Dioxin and everything

Recent Evolution of Extramural Programs

➔ *Enabling*

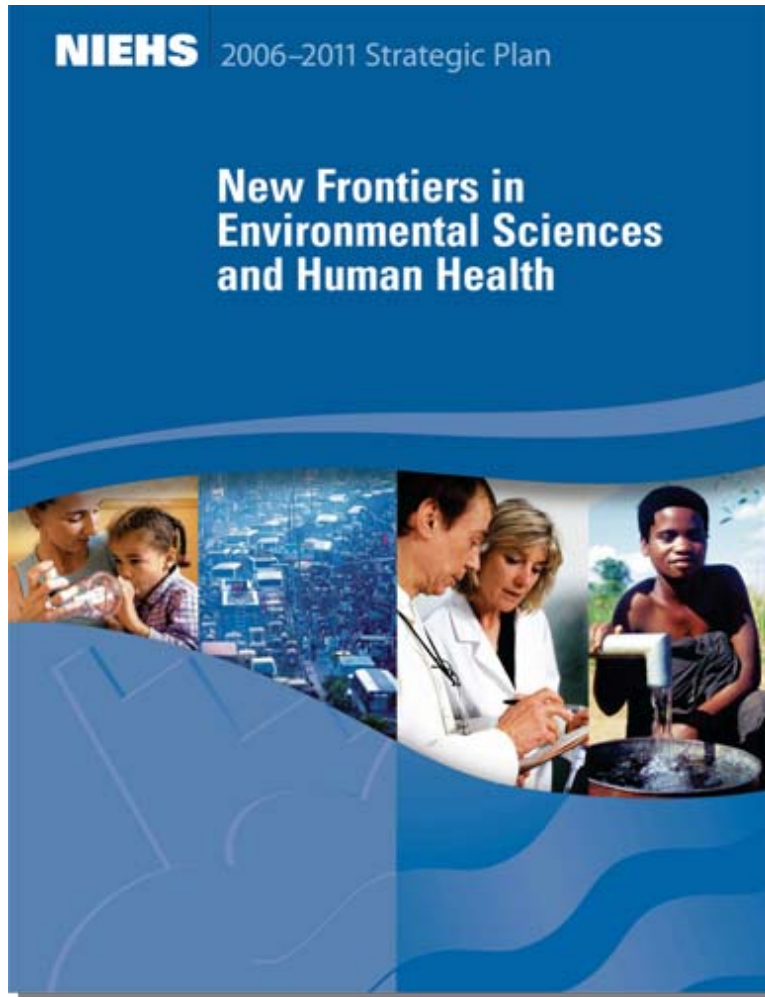
- Environmental Genome Project
- Toxicogenomics Research Consortium
- Proteomics
- Metabolomics
- Epigenetics

➔ *Translation*

- Fetal Basis of Adult Disease
- Childrens Centers
- Parkinson's
- Breast Cancer
- Oceans and Human Health
- Health Disparities Centers

Continue Development of Integrative Science

- Focus on human disease process
- Improved integration of physician-scientists into the environmental health sciences
- Improved measures of exposures
- Using exposure as a tool to understand underlying biology



NIEHS 2006-2011 Strategic Plan New Frontiers in Environmental Sciences and Human Health

How the DISCOVER Program addresses the Goals of the NIEHS Strategic Plan

Goal I: Expand the role of clinical research in environmental health sciences.

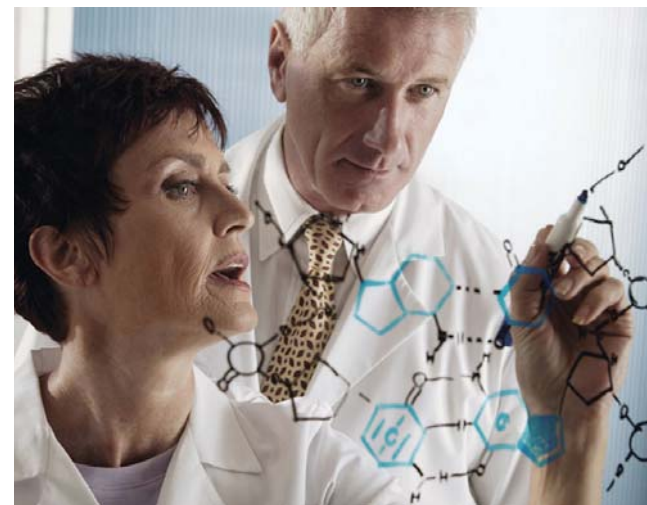
- Environmental clinical research that emphasizes the use of environmental exposures to understand and better characterize common, complex diseases.
- Develop improved research models for human disease using our knowledge of environmental sciences and human biology.
- Enhance the role of the clinical investigator in environmental health sciences.



How the DISCOVER Program addresses the Goals of the NIEHS Strategic Plan

Goal II: Use environmental toxicants to understand basic mechanisms in human biology.

- Support research that improves our understanding of signal transduction pathways and their influence on disease.
- Expand our understanding of environmental influences on genome maintenance/stability and its impact on human health.
- Lead a concerted effort to improve our understanding of epigenetic influences on health.



How the DISCOVER Program addresses the Goals of the NIEHS Strategic Plan

Goal III: Build integrated environmental health research programs to address the cross-cutting problems in human biology and human disease.

- Promote interdisciplinary, integrative research approaches.
- Identify and remove barriers to integrative research
- Improve and expand access of researchers to advanced technology and scientific infrastructure.



How the DISCOVER Program addresses the Goals of the NIEHS Strategic Plan

Goal V: Develop sensitive markers of environmental exposure, early (preclinical) biological response, and genetic susceptibility.

- Develop validated biomarkers of exposure, susceptibility, and effect.
- Develop new exposure technologies.
- Address institutional barriers to effective exposure assessment and toxicity assessment in humans.

